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TRANSDUCER ASSEMBLY AND LOUDSPEAKER INCLUDING RHEOLOGICAL MATERIAL

Abstract

A transducer assembly includes a transducer and a coupler with rheological material. A loudspeaker further includes an acoustic radiator. The coupler is mounted to the transducer and is operatively connected to the acoustic radiator. The transducer excites bending waves in the acoustic radiator to produce an acoustic output. By control of the rheological material, which may include mageto-rheological liquid or electro-rheological liquid, the transducer in various embodiments may selectively be substantially rigidly or substantially flexibly coupled to the acoustic radiator. If flexibly coupled the force experienced by the transducer when the host device is dropped, jarred, or pressured may be reduced from that experienced with a rigid connection. The acoustic radiator may be, for example, a display such as an LCD or a window mounted over a display. A mobile terminal may include such a loudspeaker in accordance with one embodiment.